Micro-controller & Embedded System
(EC-306, Dec-2007)

Note: Section A is compulsory. Attempt any four questions from Section-B and any two from Section-C.

Section-A

1. a) To which register does the SMOD bit belong? State the role in rate of data transfer?
   b) Discuss the IE (Interrupts register) contents in detail.
   c) In which categories we can divide Interrupts related to 8051.
   d) Why do we need interface circuit for applications of Micro-controller?
   e) Write a program to see whether the accumulator is divisible by 8.
   f) Write the instructions to save the CY & AC flags in bit locations 4H & 5H respectively.
   g) When TI & RI flag bits are raised?
   h) Explain the difference between the low level & edge triggered interrupts.
   i) What are contents of different important register after reset?
   j) Which ports of 8051 bit addressable?

Section-B

2. Explain the pin diagram of ADC 804 with respect to all pins working.
3. What are different addressing modes of 8051? Explain in detail about memory addressing modes also?
4. Write the syntax of ORL instructions for all modes.
5. Write a program to transfer the word "VIKAS" serially at 2400 baud rate, 8 bit data, and 1 stop bit. Make it working for infinite loop.
6. Write a program to create a square wave of T = 160ms on pin P2.2 while at the same time 8051 is sending out 55H and AAH to P1 continuously.

Section-C

7. (a) Write a program to
   (i) Write the values 55H to the RAM locations 40-4FH.
   (ii) Add all the values and save the results in RAM locations.
   (b) Write about CJNE instructions and all the flags affected by this instruction.
8. Show the connections of TXD & RXD of 8051 to DB-25 connections via MAX-233. Explain in detail then Explain MAX-233 individually.
9. Write a program in which every 2 seconds, the LED connected to P2 & is turned on and off four times, which at the same time 8051 is getting data from P1 and sending it to P0 continuously. Make sure the on and off states are 50ms in durations.